

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
13 October 2005 (13.10.2005)

PCT

(10) International Publication Number  
**WO 2005/096227 A1**

(51) International Patent Classification<sup>7</sup>: **G06T 7/60**,  
A61B 5/055

(21) International Application Number:  
**PCT/SG2005/000106**

(22) International Filing Date: 1 April 2005 (01.04.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/558,567 2 April 2004 (02.04.2004) US

(71) Applicant (for all designated States except US): AGENCY  
FOR SCIENCE, TECHNOLOGY AND RESEARCH  
[SG/SG]; 20 Biopolis Way, #07-01 Centros, Singapore  
138668 (SG).

(72) Inventors; and

(75) Inventors/Applicants (for US only): K.N., Bhanu  
Prakash [IN/SG]; Blk 305, #06-419, Clementi Ave 4,

Singapore 120305 (SG). VOLKAU, Ihar [RU/SG]; 6 Jalan  
Lempeng, #12-03, Singapore 128795 (SG). NOWINSKI,  
Wieslaw, Lucjan [PL/SG]; 111 Clementi Road, #10-06  
NUS, Kent Vale Block C, Singapore 129792 (SG).

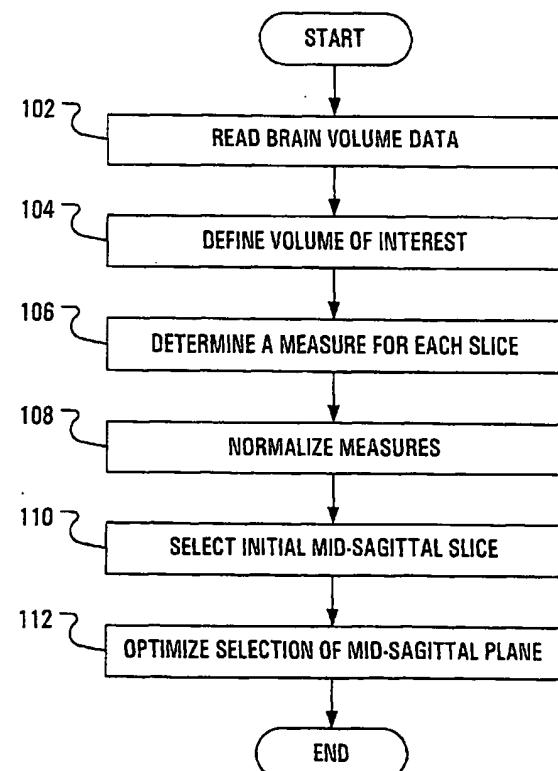
(74) Agent: YUSARN AUDREY & PARTNERS; 190 Middle  
Road, #12-04, Singapore 188979 (SG).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ,  
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,  
ZM, ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,

*[Continued on next page]*

(54) Title: LOCATING A MID-SAGITTAL PLANE



(57) Abstract: Volumes of interest may be defined, within a three-dimensional brain image, for each of three orthogonal directions. Measures, which may, for example, be energy or entropy measures, are determined for slices of the volumes of interest in the three directions. The volume of interest corresponding to the sagittal direction is then identified. The slice, among the slices in the volume of interest corresponding to the identified sagittal direction, having the optical measure is used to define a first estimate of the mid-sagittal plane. The first estimate of the mid-sagittal plane may then be used to build an input to an optimization technique, which operates until a convergence criterion is satisfied, at which point a final estimate of the mid-sagittal plane may be produced.

WO 2005/096227 A1



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA*

*ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designation US*
- *of inventorship (Rule 4.17(iv)) for US only*

**Published:**

- *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*